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ABSTRACT

Although the National Curriculum Council for England and Wales has recognized environmental education as one of five cross-curricular themes in school education, it has not achieved the same degree of influence in the Further and Higher Education (FHE) sector. This document recommends that a program be developed for that purpose. The booklet is presented in eight sections. An introduction describes the problem and the organization of the recommendations presented in the document. Four sections outline recommendations for developing environmental education in FHE and show examples of good practice already achieved in some colleges and institutions. The four sections discuss basic aims and content for FHE; the key environmental education related subject areas of agriculture and horticulture, planning, and management and business; teacher training; and the conservation field. The final three sections contain the conclusions, a summary of the key recommendations, and a bibliography of 15 citations. (MDH)

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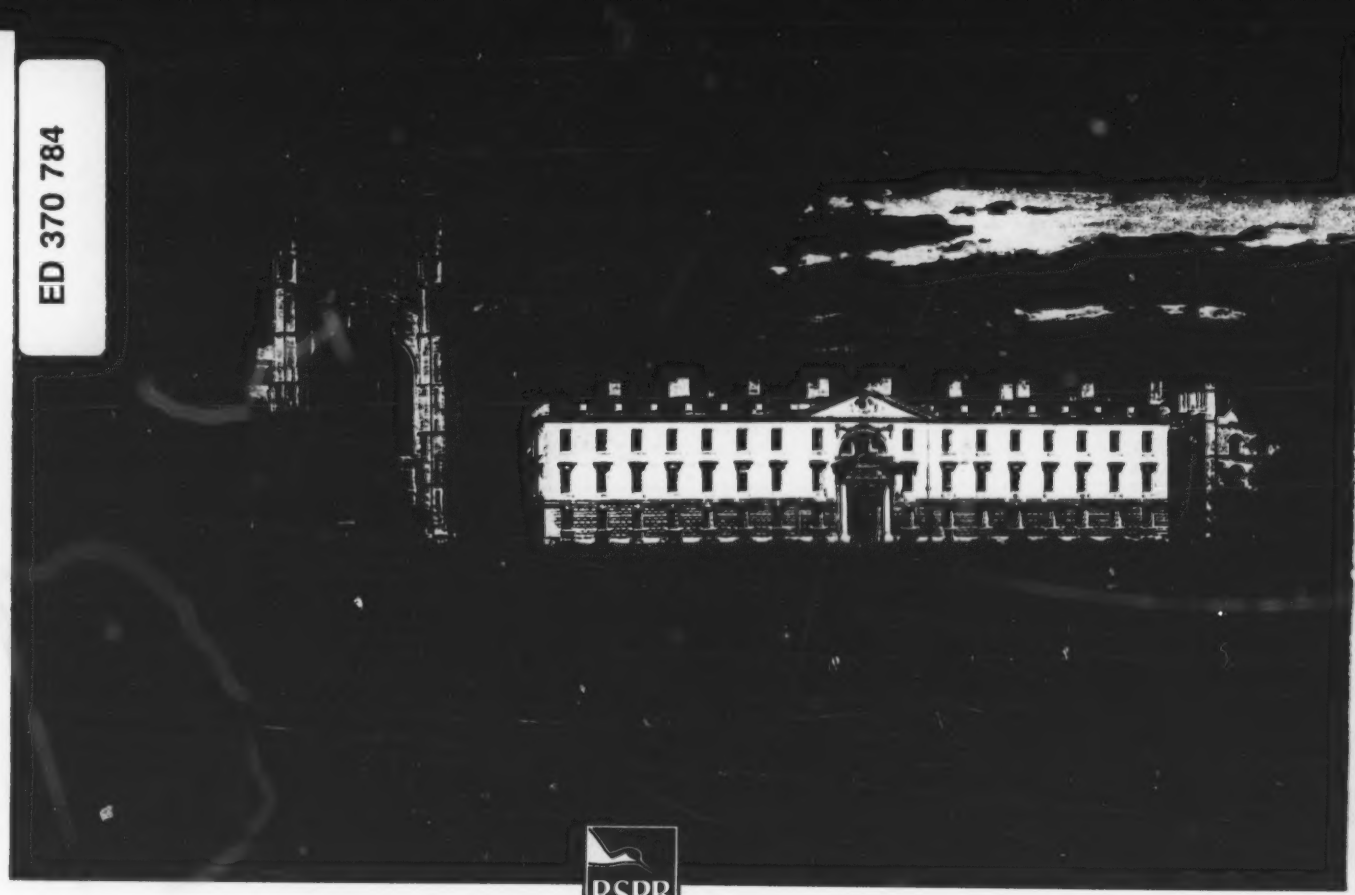

RSPB

THE ROYAL SOCIETY FOR THE PROTECTION OF BIRDS

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The environment Factor

Developing an environmental programme in Further and Higher Education

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Our credentials

With over 860,000 members, the Royal Society for the Protection of Birds is Europe's largest wildlife conservation organisation. This growing membership supports us because of our positive action for the conservation of wild birds and their habitats, and our vigorous programmes in both formal and non-formal education.

- We place a strong emphasis on education as a vital tool in promoting sustainable development and enabling people to address environmental issues.
- We are the UK partner of BirdLife International, working across the globe to achieve a better future for the environment.
- We research conservation issues and propose and implement solutions to the problems.
- We campaign, with success, for changes in UK government and EC policies that will benefit wildlife conservation.
- We buy special areas of land in the UK to manage as nature reserves for the benefit of wildlife and people.
- We develop action plans to safeguard our rarest species.
- We work with landowners, industry, decision-makers and the public to provide a better future for wildlife.

David Woodfall

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Foreword

Education is critical for promoting sustainable development and improving the capacity of people to address environment and development issues.

Agenda 21 of the United Nations Conference on Environment and Development, 1992, Rio.

In the last few years there has been a surge of public interest in the environment. Pollution incidents, ozone depletion, global warming and destruction of natural habitats have all been headline news. Environmental concern and green consumerism have soared - many people have started recycling bottles and paper, and converting their cars to run on lead-free petrol. This may indicate some form of new environmental awareness but there is still a general lack of public understanding of basic ecological concepts. And if we are to achieve the major changes that the threats to the environment demand, we must have that understanding.

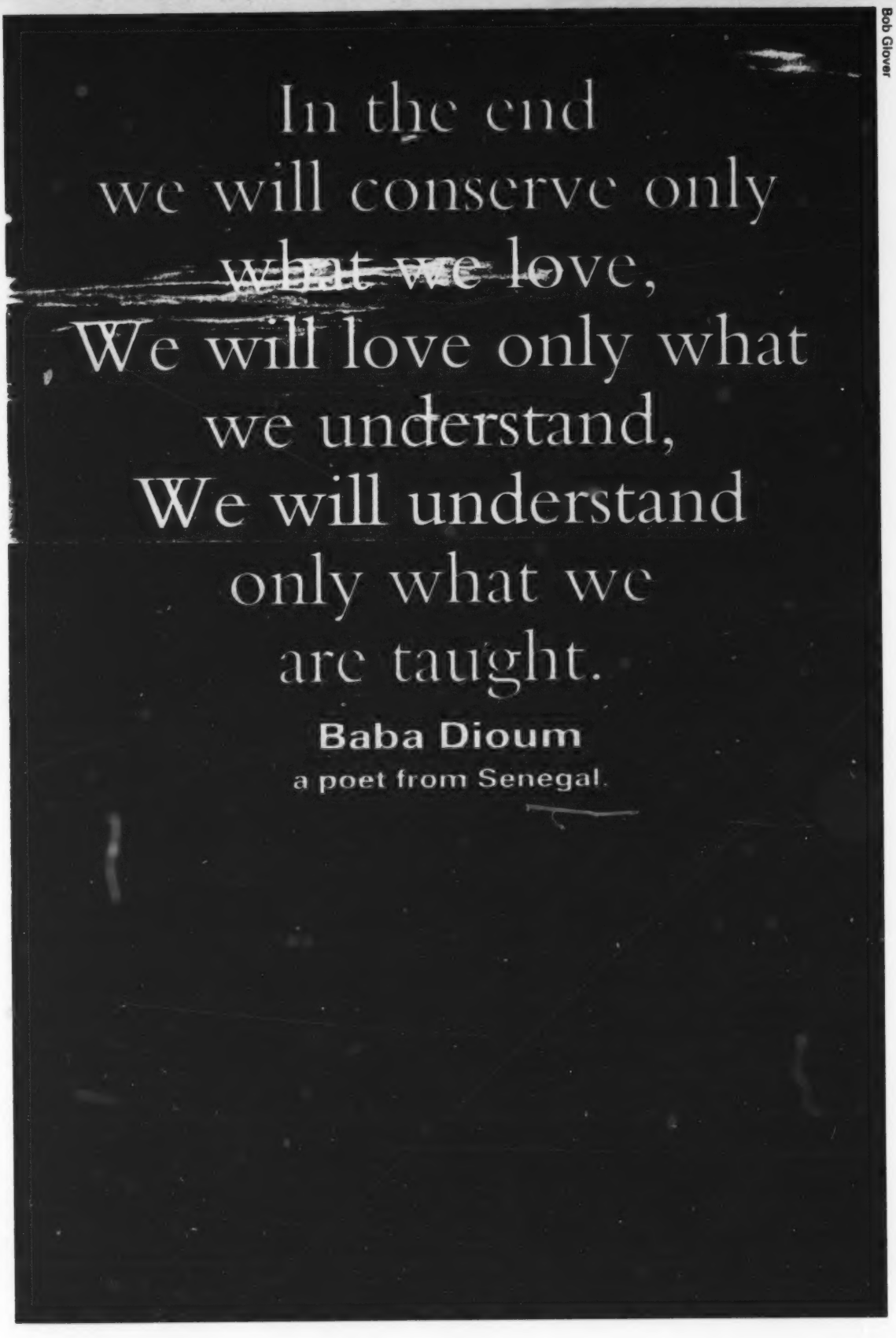
To understand these concepts it is essential that sound, supporting education and training is provided. Already the environment has been introduced as one of five cross-curricular themes within the National Curriculum. This is indeed a valuable development and, although some schools have still to make progress in this area, its introduction is much welcomed by all of us committed to the vital role that environmental education has to play.

But it is not just during the school years that environmental education should be available. It must be available for students throughout their education days: from toddlers during the pre-school years, through primary and secondary education and continuing into Further and Higher Education (FHE). The new National and Scottish Vocational Qualifications in environmental conservation also have a vital role to play, but this document concentrates on the FHE sector.

We all have a duty to care for the environment and to seek solutions to local as well as global problems - to play our part in developing a more sustainable society. This report illustrates the real possibilities that exist for the workforce of tomorrow to acquire the skills and knowledge that will make this possible. It is now up to the Government, and colleges and institutions of FHE, to ensure that the recommendations laid down in this document are built upon and implemented. Education and training for the environment can no longer be regarded as an optional extra - it must be an entitlement for everybody, permeating the entire educational system.

Keith Turner.

Keith Turner
Member of the Toyne Committee into Environmental Education in FHE and Executive Co-ordinator, Council for Occupational Standards and Qualifications in Environmental Conservation.



Bob Glover

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Introduction

As we go about our everyday lives we all have opportunities to behave in ways that are more sensitive to the needs of the environment. But these opportunities are often overlooked because, in many cases, we lack the awareness, knowledge, understanding and skills necessary to make informed decisions about the way we use our world.

As the largest voluntary nature conservation body in Europe, the RSPB has a major concern for the way our countryside is managed and used. We believe the essential attitudes and skills that will enable us to play a full part in resolving environmental problems can largely be gained through education and training.

For many years we have actively campaigned for environmental education to be built into the school curriculum - opportunities now exist in such areas as science, geography and technology. The National Curriculum Council for England and Wales has also recognised environmental education as one of five cross-curricular themes. Sadly, it has not achieved the same degree of influence in the FHE sector. Evidence from recent RSPB surveys into the implementation of environmental education in FHE suggests that it is currently largely unstructured, unplanned, unco-ordinated and under-resourced. There is no widely accepted 'environmental ethic' underpinning FHE courses or vocational training.

The Queen's University of Belfast is strongly placed to lead the Northern Ireland community in environmental matters.

To foster research and teaching, departments ranging from Arts to Law, Geo-Science and Agriculture are developing a joint environmental strategy for the University. Strong links have also been forged with Government departments and environmental NGOs.

Recently, however, greater attention has been paid to the place of the environment in FHE. *Environmental Responsibility - an Agenda for Further and Higher Education*, the Report of an Expert Committee chaired by Professor Peter Toyne, is particularly strong in its support for environmental education in FHE and makes many important recommendations:

Our principal recommendation is that every FHE institution should itself adopt an appropriately timetabled strategy for the development of environmental education. And that strategy will have no credibility unless the institution proclaiming it adopts and implements a wider strategy for the improvement of all aspects of its environmental performance. Institutions simply must practice what they teach!

M Hunt, RSPB

Short-eared owl

The RSPB welcomes this report and supports the recommendations it makes. If adopted we believe these recommendations will greatly increase the environmental awareness and understanding of the future workforce. In addition to these recommendations, we argue that environmental education in FHE should operate at four main levels:

1 a basic provision for all students to increase the overall environmental awareness, knowledge and understanding of our future workforce;

2 for students following courses leading to careers in which decisions will be made that directly affect the quality of the environment and its associated wildlife populations;

3 teacher training in order to meet the environmental education requirements of the curriculum;

4 training for direct employment within the conservation and environmental sectors.

In the following pages we outline our recommendations for developing environmental education in FHE and show examples of good practice already achieved in some colleges and institutions. Our key recommendations can be found on page 16.

NB *Although the Toyne Report refers only to England and Wales, we believe its proposals and those we make here, are also relevant in Scotland and Northern Ireland.*

A basic **entitlement**

As consumers and voters our actions influence the decisions of industry and commerce, politicians, planners and those in the public sector. It is therefore important that all FHE courses, whatever their level and subject focus, should aim to increase understanding of the fragility of the natural world. Training in ways of reducing environmental risk and positive action to enhance and improve our surroundings is urgently needed.

David Woodfall

Positive action to improve our environment is part of the FHE process.

The Toyne Report recommends that every FHE college, institution and university should consult with staff and students to produce a policy statement and action plan for development of environmental education within their syllabuses and institutional policies. We fully support this and suggest that the policy should promote environmental education across all courses, even those that have little apparent connection with the environment. Guidelines for sympathetic environmental practices within the management of the institution itself should be included. The policy must be regularly reviewed and updated as necessary.

It is important that the emphasis of environmental education within FHE and vocational training should be different from the school experience. We suggest that the focus should be on ways of reducing the environmental impact of the industries and careers for which the students are training.

The first steps in planning for increased environmental education should be for college decision-makers to discuss the development of appropriate policies for their institution, and invite colleagues to select appropriate environmental and conservation topics for integration within curricula. The academic staff have a leading role to play here, but the views of students and local employers should also be taken into account to encourage their involvement and ensure relevance to the workplace.

It will be necessary to provide development programmes for lecturing staff to enhance their own environmental education.

Course syllabuses should indicate assessment procedures, evaluation and inspection requirements for environmental education and give accreditation to individuals when they have demonstrated competence in environmental skills. National examination, validation and accreditation bodies, should encourage the teaching of positive action for the environment.

All FHE courses should aim to:

- increase 'environmental literacy', so that individuals are motivated and equipped to make decisions that favour the environment;
- generate a sense of personal responsibility for the environment with a commitment to taking positive action for its improvement at home and at work;
- increase understanding of the decision-making process at local and national levels, and the role of the individual in this process.

What should FHE courses include?

To achieve the aims outlined, a range of topics need to be included within the core of most courses. Examples include:

- how wildlife populations provide an indication of environmental quality and change;
- the links between quality of the environment and quality of human life;
- the interrelationships between living things and their physical environment - a knowledge of habitats and ecosystems;
- the necessity of maintaining local and global 'biodiversity';
- the fragility of habitats and the impact of human society on nature;
- conservation and the 'environmental stewardship' concept;
- the concept of 'sustainable development';
- appreciation of the need for planned development and use of the environment;
- a basic knowledge of current environmental regulations and law relevant to the course subject.

Newcastle College, Newcastle upon Tyne, comments:

Our aim is to encourage students to be both environmentally friendly and cost effective. For example, our hairdressing department uses CFC-free aerosols and recycles rubber gloves and polythene bags. Students are made aware of environmental consequences of the chemicals used in their work and other related issues.

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Developing an environmental policy statement

Environmental education is not only concerned with promoting the sustainable use of the environment. It is also committed to helping students develop positive attitudes for the environment. Therefore, as the Toyne Report points out, the ethos and organisation of the institution itself is as important as the formal curriculum - institutions must practice what they teach.

In February 1993, the RSPB carried out a review of current practice concerning environmental education within FHE. This revealed that only 36 per cent of colleges had established 'Green Working Groups', who were considering, or had already produced environmental policy statements. The great majority of these groups included both curriculum development and overall institutional practice, although a few were concerned with specific issues only, such as energy saving and recycling. The RSPB's Regional Education Advisers will be pleased to comment on environmental policy proposals.

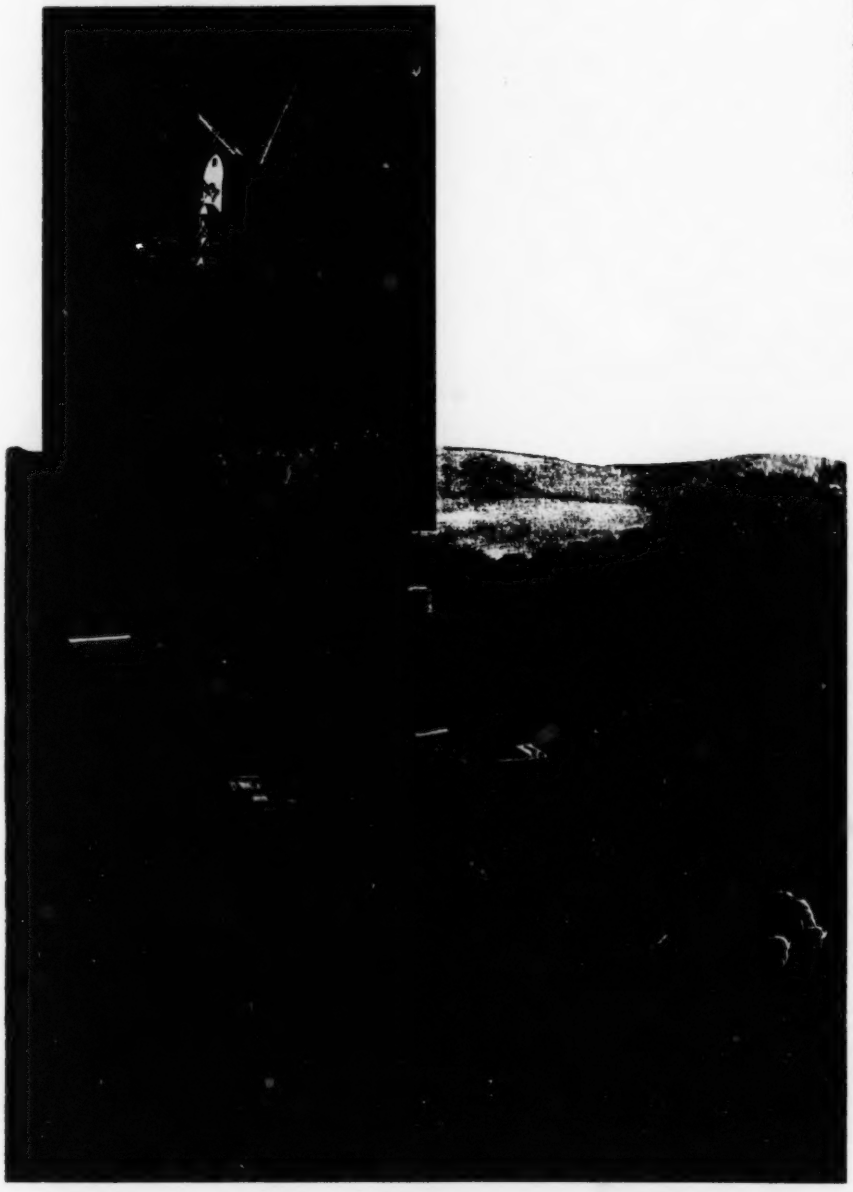
The World Commission on Environment and Development defines sustainable development as 'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'

A good basic example of a policy statement is that produced by Huddersfield Technical College:

Huddersfield Technical College aims to promote a sound awareness and understanding of local, national and global environmental issues and, through its own practices, to operate in such a way as to both conserve and improve the environment.

It will achieve these aims, wherever possible, by:

- **Minimising its consumption of scarce natural resources.**
- **Encouraging the recycling of materials.**
- **Using materials and equipment and developing practices and procedures which do not cause harm to the environment.**
- **Continually improving the internal and external environment.**
- **Promoting an awareness and balanced understanding of environmental issues in taught courses.**
- **Providing a range of courses relating directly to environmental issues.**
- **Initiating a constructive, on-going dialogue with local and national environmental agencies and groups.**



D Elcome, C H Gomersall, RSPB

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C H Gomersall, RSPB

The conservation of biodiversity is defined as the maintenance of ecological resources - ensuring the survival of the maximum number of wild animal and plant species and the genetic pool they contain, both globally and locally.

Consider the following points when drawing up an action plan:

- In what ways are environmental issues integrated within courses that you currently offer?
- What opportunities are there to increase the environmental content of courses without compromising academic demands?
- What are the constraints of available time, resources and staff expertise?
- In what kinds of environments are your students most likely to work when employed in industry or commerce?
- What direct impacts will their work activities have on those environments? What indirect impacts are they likely to have?
- How might students be taught to minimise environmental damage or risk? What are the skills required? Are these included in the course syllabus?
- Could competence be assessed and recognised by accreditation (eg through GNVQs, NVQs, SVQs etc)?
- How may the environment be used as a context for your teaching or training programmes?
- What values are you transmitting to your students concerning the environment? What attitudes do they have at the beginning of the course? What attitudes do you want them to have? How can these be achieved?
- What is the potential for improvements to be made to the institution's own environment and environmental practices?
- Do you practice what you teach? Has your college implemented an environmental action plan?

An Environmental Audit of Glasgow Caledonian University, (formerly Glasgow Polytechnic)

In 1991 students studying for the MSc Energy Systems and Environmental Management Course carried out a green audit to identify a baseline for action by the college. The resulting action plan recommended:

- **More efficient use of energy by improved use of thermostats; upgrading insulation of buildings; better maintenance and decentralising heating systems.**
- **Recycling materials, including developing a compost area for organic wastes.**
- **Elimination of hazardous cleaning materials and pesticides and a policy for the resale and re-use of outdated durable goods.**
- **Improved use of campus accommodation to improve efficiency; planting of low-maintenance native shrubs and trees to improve the external environment; improved facilities to encourage the use of bicycles.**
- **Improved heating of the dining area by a heat-exchange system from the kitchen, and reducing food waste by establishing customer preferences from questionnaires.**
- **The promotion of greater awareness of environmental issues through its curricula.**

The audit will be repeated at regular intervals to allow effective monitoring.

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Key subject areas

In addition to a general environmental education entitlement for ALL students in FHE, the RSPB believes that there must be particular provision within courses leading to careers that directly affect the quality of the environment and wildlife populations. These particularly include courses in agriculture, other land-based industries and planning.

Agriculture and horticulture

Agricultural education has a special responsibility for the environment. Farming occupies 76 per cent of the land area of the UK - agriculture is, therefore, responsible for the stewardship of much of our soil and water resources and many of our species of fauna and flora, some of which are of international importance. The adoption, in recent decades, of more intensive methods of agricultural production has had a profound effect on the landscape and reduced the biodiversity of rural areas. Some farmers are now introducing wildlife conservation measures, but there is still an urgent need to increase awareness among our future farmers of their responsibilities as 'custodians of the countryside'.

An example of 'good practice' is provided by the HND Agriculture course at the Welsh Agricultural College.

An underlying aim for the course is to stress the role of the farmer as 'custodian of the countryside'. Environmental training is taught at two levels within the course:

- **integrated throughout the course and taught as an integral part of the production process;**
- **as a free standing unit (Countryside Management) which provides more detailed coverage of conservation, recreation and related wider countryside issues.**

In some areas there are many funding and incentive schemes that encourage farmers and landowners to carry out positive management for wildlife habitats on their land, eg Countryside Stewardship Schemes, Environmentally Sensitive Areas (ESAs). Our future agriculturalists and land managers must be given relevant training to take full advantage of these schemes. Training to provide this should be seen as a real business opportunity by the industry, taking maximum advantage of the increasingly 'green' attitudes of society. If advantage is taken of conservation support schemes and intensive inputs are reduced, cost savings may result.

A survey by the RSPB in 1991 of *Conservation Education in Colleges of Agriculture* revealed that 78 per cent of colleges in the UK did NOT include conservation within their mainstream courses. The situation may have improved since 1991, but few lecturers in agricultural colleges at that time considered it their responsibility to train students in

Intensive arable landscape, Nottinghamshire

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Michael Stecuik

C H Gomersall, RSPB

Knowledge of environmentally sensitive farming methods are urgent requirements. The delayed cutting of hay until mid-July in the Outer Hebrides allows the corncrake to rear her chicks safely.

wildlife and environmental protection. Most courses only aimed to provide future farmers with the skills and knowledge necessary to use their land economically and efficiently to produce food.

Some environmental education did occur among the 22 per cent of colleges but it was often treated as a separate topic - an optional module followed by a minority of students. The modular approach is very popular as a means of organising HND and BTEC courses, but lecturers should ask whether this is the best way to teach conservation. The RSPB argues that conservation is more effectively taught when it is integrated with the teaching of crop and livestock husbandry and production techniques, emphasising sustainable agricultural methods.

The RSPB considers that basic environmental training should be regarded just as fundamentally as considerations of Health and Safety. It should, therefore, be included within the compulsory core of all courses in agriculture and horticulture at every level.

Wildlife conservation on farms would benefit if students were trained in the techniques of drawing up conservation management plans.

Colleges should carry out audits of their environmental practices which are frequently reviewed and updated. It is especially important to consider the example set by the college farm/estate. Does it actively demonstrate a commitment to sound environmental and wildlife conservation management?

RSPB Conservation Advisory Section can offer advice on farmland habitat management for wildlife. A range of advisory leaflets are also available.

Sparsholt College, Hampshire has an in-house Environmental Education Working Group with representatives from all academic sections in the college.

This group investigates the environmental input to every course run at the college; considers and implements innovative environmental training ideas and techniques, disseminating this information to course tutors within each section.

The college has an 'Environmental Policy Statement' which is distributed to all staff and students, and which is regularly monitored and updated by a team with members drawn from all aspects of college life. This includes a commitment to the college being managed:

. . . . in an environmentally sound manner as far as is reasonably possible, and aim in the long term to incorporate working practices and technologies which comply with and exceed the minimum legal requirements for environmental impact.

The Policy Statement concludes: Above all, think of the environmental consequences before you act.

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Roger Wilmshurst, FLPA

Agricultural colleges should ensure that:

- their library resources meet the needs of environmental education;
- the college farm/estate implements a conservation management plan which demonstrates good practice;
- through staff-development programmes, college lecturers are well trained in reducing environmental risk within the techniques and practices used in agriculture/horticulture/forestry;
- the legal requirements and social pressures for conservation within the agricultural industry are understood;
- college staff are aware of current conservation support schemes from which practising farmers and horticulturalists may benefit.

Agriculture/horticulture courses should include the following topics to provide a fundamental understanding of conservation management in the rural environment:

- ecological principles and natural chemical cycles, such as the nitrogen and carbon cycles;
- the actual/potential impact of modern farming on the landscape and wildlife populations (biodiversity);
- development of positive attitudes to the environment and an understanding of good environmental practice in farming and horticulture;
- the legal and social responsibilities of agriculture with regard to environmental and wildlife protection, eg the provisions of the Wildlife and Countryside Act, 1981;
- the importance of common farm habitats to wildlife; knowledge of how to apply practical techniques for their conservation, creation or restoration;
- the opportunities for conservation presented by grant support schemes such as Environmentally Sensitive Areas (ESAs); Countryside Stewardship Schemes etc;
- the role of relevant conservation and countryside organisations where advice may be sought;
- the principles of sustainable land-use and 'optimal' rather than 'maximum' production based on cost-benefit analysis and assessment of environmental risk.

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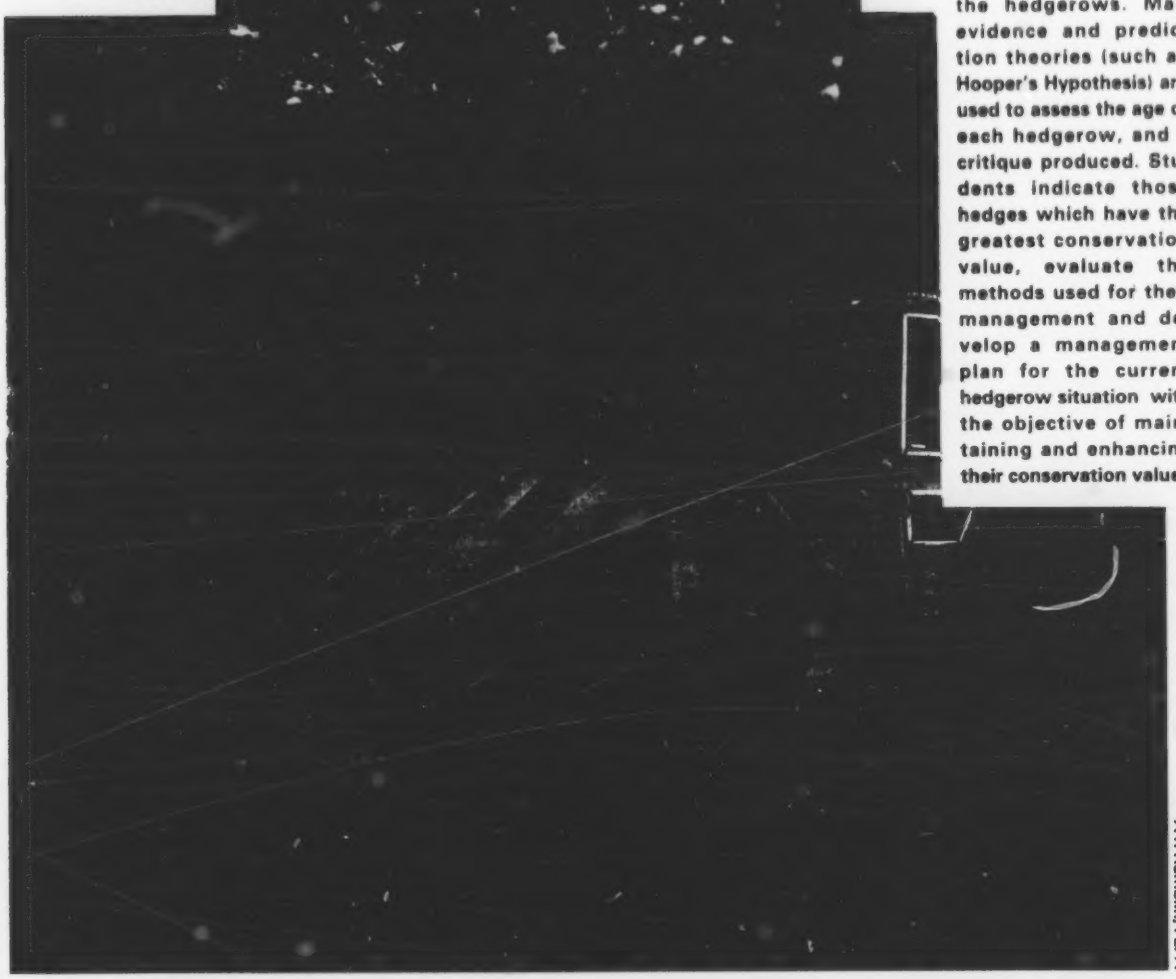
Roger Wilmshurst, RSPB

Hedgerows are an important habitat for birds like the yellowhammer. But between 1984 and 1990, over one-fifth of all hedges were lost to built development, agriculture and neglect.

Pencoed College provides BTEC First Certificate students with an assignment aimed at increasing awareness and understanding of hedgerows as a wildlife habitat. The students use the College Farm as their study area and investigate the hedgerow environment, its composition, functions and conservation value.

Working as small groups the students assess the position, typical species composition and age of the hedgerows. Map evidence and prediction theories (such as Hooper's Hypothesis) are used to assess the age of each hedgerow, and a critique produced. Students indicate those hedges which have the greatest conservation value, evaluate the methods used for their management and develop a management plan for the current hedgerow situation with the objective of maintaining and enhancing their conservation value.



A R Hamblin, FLPA

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Planning

Most professional planners command an excellent understanding of planning law and regulations, including some of those drawn up to protect our countryside. However, their ability to make wise decisions about the environment would be greatly enhanced if their training provided a better understanding of wildlife, ecology and knowledge of the international obligations to protect species and habitats. These matters are increasingly important when determining the fate of our countryside.

Stuart Housden,
Head of Conservation Planning, RSPB

Manchester Metropolitan University's Department of Environmental and Geographical Sciences aims to aquaint students more fully with conflicts that must be resolved by decision-makers and with the functions and views of a variety of organisations - government, industry, conservationists etc.

The University provides material by which the students are able to reconstruct a 'Public Inquiry'. These include such considerations as quarrying operations, national park policies, landscape, ecology, traffic and disturbance, geology and speleology, employment opportunities and local objections.

The exercise is based on an actual planning application for a quarry extension near Castleton, within Peak District National Park. Students 'role play' and present the cases of Landscape Managers, Minerals Consultant, Quarry Manager etc, and representatives from other organisations, including conservationists. The 'case' is heard by about 100 fellow students who participate as members of the public and prepare their own 'Inspector's Report'.

Through the decisions they take, planners have a particularly vital role in safeguarding and improving the quality of the environment, by steering damaging development away from important sites and habitats, ensuring a correct balance between development and environmental needs, and achieving the environmental sustainability of development projects in general. It is essential, therefore, that planners possess a full understanding of environmental opportunities, problems, legislation and regulation at national and EC levels.

The countryside provides the fabric within which areas of high biodiversity are found. Habitats and species often become rare as a result of human pressures and, therefore, serve as indicators of our failure to conserve biodiversity alongside human economc activity and development.

Within planning courses, greater emphasis should be placed on sustainable development. An essential test of the 'sustainability' of any development should be that it does not result in the reduction of the range and numbers of wildlife species, and that it will not prevent possible future

C H Gomersall, RSPB

Development must be planned to ensure that the most important conservation sites are safeguarded.

increases in the populations of those species, that have been adversely affected by human pressures in recent decades.

In order to ensure the protection of key habitats for wildlife, we recommend that greater emphasis is placed on the interaction of planning on wildlife protection legislation - eg the Wildlife and Countryside Acts; the EC Birds and Habitats Directives; the Ramsar Convention. Courses should also build in greater knowledge of the law relating to pollution. Planners should be made aware of the major indicators of environmental quality and the regulations applying to Environmental Assessment (EA). EA modules should include examination of 'Strategic EA' applied to policies, plans and programmes, which helps to ensure early identification of potential environmental problems. Planning courses might usefully indicate the roles of the various statutory countryside agencies and voluntary organisations such as RSPB, RSNC etc. RSPB's conservation staff are pleased to comment and offer advice on all planning proposals likely to affect important wildlife habitats.

At a very basic level thought might be given to the optimum timing of development activities to minimise risk and damage to wildlife eg avoiding the breeding season. Increasingly, the value of wildlife for attracting tourists is being appreciated. Sensitive 'green tourism' has been shown by the RSPB to be a significant element in the economy of areas such as Orkney. Ways of integrating this aspect with development projects would be a useful addition to planning courses.

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Management and business

Environmental issues increasingly impinge on the decision-making of industry and commerce. Environmentally sensitive management practices bring both economic and cultural benefits, although they should not be seen simply as an exercise in public relations and 'image'. Industry and commerce should adopt 'green' practices as soon as possible. They should not wait until they are forced to do so by legislation. Environmental considerations need to be fully integrated immediately into all areas of business activity to meet the growing demands of consumers, shareholders and governments.

Within management and business courses at both undergraduate and postgraduate levels, future managers must be made aware of their responsibilities under the Environmental Protection Act (1990), which includes the 'polluter pays' principle. The British Standards Institute with the Department of the Environment and EC have piloted standards for Environmental Management Systems for large and medium sized organisations - BS7750. This uses a 'life cycle' approach to good practice in the environment.

Another important aspect of management will be to ensure that every employee understands, implements and, above all, participates in the formulation of the organisation's policies for sound environmental practice.

Environmental education should become an integral part of all workplace, in-service management training and staff development initiatives - seminars, workshops, lectures, induction training programmes, and even newsletters.

Skills within management and business courses should be developed so that:

- informed decisions may be taken to reduce damage to the physical world and wildlife populations;
- the sharing and adoption of cleaner alternatives and environmental 'good practice' is encouraged;
- managers are able to handle positive change, and wisely address new environmental challenges when they arise.

Within its degree courses for Environmental Technology and Engineering, the University of Surrey has adopted an approach which has been accepted by the Engineering Council. The emphasis is on planning, design and implementation, and uses 'Life Cycle Assessment' (LCA) as the intellectual framework and tool for environmental education and policy development.

The Engineering Council's Code of Practice for Environmental Education of Engineers' is used to increase awareness of professional actions and responsibilities. This requires educational providers to:

- **include a general awareness of environmental issues and techniques for waste minimisation, pollution prevention and efficient use of resources;**
- **assess awareness and understanding of environmental management and review techniques.**

As a framework, 'Life Cycle Analysis' has acquired legitimacy as the basis for 'Ecolabelling'. It can also provide a systematic structure by which engineers may analyse the total environmental implications, costs and benefits to society of a product, process or project within their area of professional responsibility. Engineers are required to interpret and use LCA results to minimise resource consumption and environmental impact, and to maximise social benefit.

David Woodfall

Pollution from detergents, River Mersey

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Teacher training

The development of effective and coherent programmes of environmental education in schools requires co-ordination, understanding and commitment from the teachers involved. Proper training in environmental education and appropriate curriculum organisation for teachers is therefore essential.

The environmental literacy of teachers is important if the school curriculum, from pre-school to 16 -18, is to provide pupils with a basic understanding of the environment before they enter FHE and employment.

It is a requirement that courses of initial teacher training (ITT) in England and Wales approved by The Council for the Accreditation of Teacher Education (CATE) should focus on the National Curriculum, and all courses must include the teaching of environmental matters as a cross-curricular theme.

Courses specialising in training teachers should consider the opportunities for environmental education presented by the school curriculum. They should also consider its cross-curricular nature and appreciate how topics might show progression from simple, stimulating starting points for infants to more complex ecological concepts and understanding of conservation issues, both local and global, with older pupils working for GCSE or Standard Grade; 'A' level or Higher Grade.

C H Gomersall, RSPB

C H Gomersall, RSPB

By the time they leave school the RSPB hope that pupils would have encountered and developed a range of concepts, skills and attitudes including:

- an understanding of food chains, adaptations of organisms to various habitats, of simple ecological principles and the complex interaction between living organisms and their physical environment;
- an understanding of the fragility of habitats and the causes of damage to nature - an awareness that human activities may damage the environment;
- awareness of environmental issues and a concern to find solutions;
- an understanding of the economic, social, technological, historical, aesthetic, ethical, spiritual and political influences on the planning and use of the environment;
- an understanding that there are different points of view on environmental issues and that bias in the presentation of 'evidence' occurs as a result;
- skills that will enable them to participate actively in resolving environmental problems;
- an ability to carry out an enquiry into an environmental issue which they perceive to be a problem in their local area and suggest a variety of solutions;
- appreciation of the complex relationship between local environmental issues and those of global importance.

The RSPB's Education Department offers a wide range of resources and teacher training courses for environmental education.

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The conservation **field**

In recent years a plethora of courses in 'Environmental' and 'Countryside Management' have been developed in FHE. It is apparent that undergraduate and diploma courses in the Environmental Sciences are popular with students and such courses are usually fully subscribed. But we are concerned that there may be fewer direct employment opportunities than the students have been led to believe.

FHE lecturers frequently ask the RSPB to make recommendations about the skills, attitudes, knowledge and insights concerning the environment that should be taught to students in order to improve their prospects of pursuing careers in conservation. There is strong competition among candidates for full-time employment in conservation organisations and first or even higher degrees in relevant specialised environmental and/or scientific subjects are likely to be required in many conservation and ecological research posts. But employers in the conservation field need employees with practical skills in addition to good academic qualifications. For example, a good understanding of statistical analysis, familiarity with computers and a flair for applied electronics are skills required for most research orientated posts with the RSPB. Courses that have provided students with practical work experience tend to produce job applicants that are more likely to be successful. An advisory booklet *Careers in Conservation* is available from RSPB Youth Unit.

C H Gomersall, RSPB

Invertebrate sampling

Students should also be aware that they have much to gain through voluntary work which contributes to the environmental or conservation activities of organisations. Through such experience students are able to acquire highly relevant skills and a deeper understanding of how their academic studies may be applied. Sandwich placements with employers are, perhaps, the ideal opportunity, but employer-funded placements are an expensive option for the employer, and there is no doubt that this restricts the number of environmental placements available. Government could greatly assist provision by making grant aid available for such placements. A 'clearing house' for the availability of sandwich placements in the environmental field might also be established.

Conclusion

The need to use our natural resources in more sustainable ways is urgent. Valuable foundations which increase awareness and understanding of environmental problems caused by human activities are being laid within the school curriculum by those schools that have developed coherent programmes of environmental education. However, we cannot rely on this alone.

Within courses offered by institutions of FHE there must be a greater emphasis on the development of environmental understanding and competence, particularly in those courses that are of a vocational nature, training students for careers in which decisions concerning the use and management of land and other natural resources will be made.

Teacher training courses must also equip our future teachers to improve the standard of environmental education in our schools.

Examples of 'good practice' already exist, and some colleges are currently developing and implementing environmental policy statements. But, there is a certain amount of 're-invention of the wheel' taking place and there is an urgent need for 'networking' to take place between FHE institutions so that good practice may be shared.

There is also a shortage of 'student friendly' teaching materials on environmental matters suited to the needs of specialist courses - in agriculture, for example. Relatively little research has been carried out into the effectiveness of different teaching methods, programmes and teaching resources for the environment.

Many lecturers in FHE institutions also feel uncomfortable when asked to include the teaching of environmental aspects, which may, at first sight appear peripheral to their discipline. There is, therefore, an urgent need for staff development in this field. With encouragement from Government, funding agencies should provide funds specifically for these purposes.

Key recommendations

Every FHE institution should produce a coherent policy for the integration of relevant conservation and environmental concerns within all courses, with a timetable for action and implementation.

- Reforms of syllabuses and curricula are necessary to increase their environmental content. FHE courses should aim to:
  - increase knowledge and understanding of the environment;
  - raise awareness of actions, both individual and corporate, that can be taken to reduce the potential risk to the environment of working practices;
  - develop competence in skills that will improve the environment and reduce environmental risk, especially in courses for agriculture and land-management.
- Course syllabuses should indicate assessment procedures, evaluation and inspection requirements for environmental education and give accreditation to individuals when they have demonstrated competence in environmental skills.
- Colleges should produce a policy statement, with measurable targets, for the implementation of sound environmental procedures by the institution itself.
- All institutions should appoint an 'Environmental Co-ordinator' to:
  - ensure courses include a satisfactory element of environmental education;
  - assess the adequacy of teaching resources and access to staff development in environmental matters;
  - implement the institution's environmental policy statement.
- Particular attention should be paid to the environmental and conservation content of specialist courses that lead to careers in the land-based sector, especially planning, agriculture, horticulture, forestry and land agency. These courses must provide students with the necessary understanding and competence to exercise environmental responsibility.
- Teacher training courses should equip students with the relevant knowledge and understanding required to meet the environmental education conditions of the national curriculum, and the equivalents in Scotland and Northern Ireland. They should also appreciate the cross-curricular nature of environmental education and consider the opportunities provided by the curriculum for such teaching.
- The effectiveness of different environmental teaching methods and resources should be researched by colleges and their findings widely disseminated.
- College policies for environmental education should include staff development and training in appropriate environmental matters.
- Sufficient funds should be made available by the FHE funding agencies to ensure the proper implementation of the Toyne Report's recommendations. Staff development programmes, provision of resources, facilities and experiential activity required for sound environmental education, should be backed by ear-marked funding.
- Networking opportunities for the exchange of environmental information between institutions should be improved, and a structure for dialogue between professionals within colleges and those employed in industry, food production and the environmental field established.
- Government should encourage employers to make 'sandwich' placements available to students following specialist environmental courses. This could be implemented by providing grants or similar discretionary funds and establishing a 'clearing house mechanism', matching students to places.

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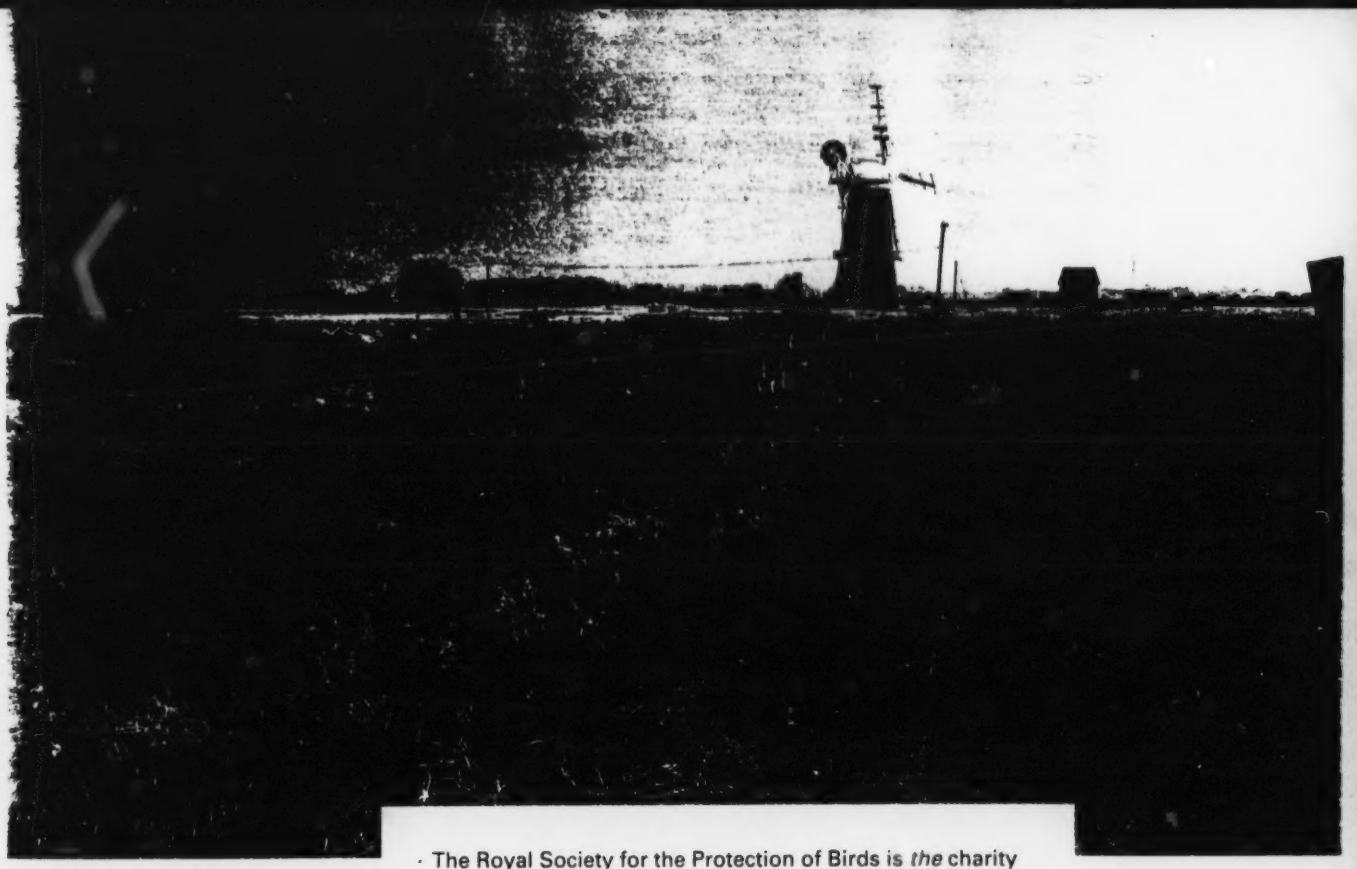

C H Gomersall, RSPB

The Royal Society for the Protection of Birds is *the* charity that takes action for wild birds and the environment and is the UK partner of BirdLife International.

The RSPB is committed to environmental education as an entitlement for all students throughout their educational life. This will provide the vital link between people understanding the environment and taking effective action for its conservation.

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